

REMARKS

In the Final Office Action of November 10, 2004, claims 1-20 are pending. Claims 1, 9, and 20 are independent claims from which all other claims depend therefrom. Claim 12 has been amended.

Claim 12 has not been amended for patentability reasons, but rather to correct a drafting error.

Claims 1-3, 5-10, and 13-17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (5,874,904).

Claims 1 and 9 have similar limitations and are therefore described together. Claims 1 and 9 recite a sensing system for a vehicle and a method of performing safety system operations within a vehicle. The sensing system of claim 1 includes the limitations of a single vision sensor having a position with coordinates on the vehicle and a controller generating a safety system signal in response to the coordinates. The method of claim 9 includes similar limitations, specifically, determining the coordinates of only a single vision sensor and generating a safety system signal in response to the determined position.

In using a single vision sensor and in performing a safety system operation in response to a known position of the vision sensor on the vehicle, the claimed invention minimizes the number of vision sensors and related system components needed to perform safety system tasks. A single sensor is utilized instead of multiple sensors.

Applicant has submitted that the term "position" within the claims refers to the coordinates of the vision sensor. In other words, the term "position" refers to any set of numbers that are used to describe and specify the location of the vision sensor within the vehicle.

The Office Action states that Hirabayashi discloses a single vision sensor having a position and generating a safety system signal in response to that position, and in so doing refers to Figures 1, 7, 8, 14, 19, and 21, as well as columns 1 and 2 of Hirabayashi. In the previous Response the Applicant has

respectfully traversed and provided arguments in support thereof. These and additional arguments are repeated and provided below.

Although Hirabayashi discloses the use of multiple sensors and one may assume that the sensors have associated positions on a vehicle, Hirabayashi does not determine the actual position of the sensors, have knowledge of their position, or suggest the like. Note any object within or external to a vehicle has a position in which it is located, however, that does not imply that the position is known, determined, and/or utilized to perform some in vehicle task. Also, Hirabayashi does not teach or suggest generating a safety system signal in response to a known position of a sensor or through use of only a single sensor.

Hirabayashi discloses the use of a pair of light-receiving devices to determine the position of a target. The light-receiving devices have associated lenses. A first lens 1 is positioned forward of a first light-receiving device 3 and a second lens 2 is positioned forward of a second light-receiving device 4. Distance between the lenses 1 and 2 is known and distances between each of the lenses 1 and 2 and each of the light-receiving devices 3 and 4 is known. Distances a_{L1} and a_{R1} between vertical lines extending through the centers of the lenses O_L and O_R and the light-receiving devices 3 and 4 are determined. From the known and determined distances the inter-vehicle distance between the host vehicle and the target vehicle is determined. This is described in the referred to columns 1 and 2 of Hirabayashi. The distance between the host vehicle and the target vehicle are determined without knowledge of the positions of the two light-receiving devices.

In Figures 1, 7, 8, 14, 19, and 21 of Hirabayashi a pair of light-receiving devices are utilized to determine distance between the host vehicle and a target vehicle using a similar method as described above, see col. 10, lines 47-53. However, each light-receiving device is in the form of a series of optical sensor arrays instead of a single optical sensor array to improve inter-vehicle distance measurement accuracy. In none of the stated figures is the position of the light-

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receiving devices within the host vehicle determined or utilized to determine the inter-vehicle distance.

The Final Office Action states that Hirabayashi discloses the claimed invention except for the coordinates. Applicant again, respectfully, traverses. Not only does Hirabayashi fail to disclose the coordinates of a vision sensor, Hirabayashi also fails to disclose: the use of only one vision sensor; the generation of a safety system signal in response to coordinates of a vision sensor; and the generation of a safety system signal in response to coordinates that refer to a known position of the vision sensor within a vehicle. Thus, Hirabayashi fails to teach or suggest a majority of the elements recited in claims 1 and 9.

Applicant submits that although Hirabayashi determines inter-vehicle distance, which may be a result of the claimed invention, that does not suggest that the elements or techniques in which that result is derived or achieved are the same or even similar. As stated, Hirabayashi determines inter-vehicle distance utilizing multiple light-receiving devices using known distances between lenses and light-receiving devices, whereas the claimed invention may be utilized to determine inter-vehicle distance utilizing the known coordinates or position within a vehicle of a single vision sensor. The techniques and the steps involved therein are completely different.

The Final Office Action states that it would have been obvious to one of skill in the art that omission of an element and its function in a combination where the remaining elements perform the same function involves only routine skill in the art, and refers to *In re Karlson* 136 USPQ 184. In such stating the Final Office Action is implying that the use of a single vision sensor as claimed is "common knowledge" or to use a single vision sensor would take only routine skill. Applicant submits that prior to the present invention it was generally understood in the art that in order to accurately determine inter-vehicle distance, when utilizing vision sensors, two or more vision sensors were needed, as is required in Hirabayashi. Hirabayashi requires the use of two or more light-receiving devices. One cannot simply remove or utilize only a single light-

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receiving device and the technique of Hirabayashi to determine inter-vehicle distance since known distances between light-receiving devices are needed in order to perform the technique of Hirabayashi. Thus, there is no reasonable expectation of success in utilizing a single light-receiving device and the technique provided in Hirabayashi. Referring to MPEP 2143.02, obviousness requires a reasonable expectation of success, *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). No such expectation exists in this case.

Also, the remaining elements of Hirabayashi do not perform the same function and are derived using different known parameters. As stated above, Hirabayashi utilizes known distances between lenses and light-receiving devices as opposed to a known position of a single vision sensor. Also, the calculations utilized due to the difference in known parameters, although not recited in the claims, performed by Hirabayashi and as stated in the specification of the present application are also different.

Furthermore, in *Karlson* elements, namely a screen and a filler tube, are removed from a system and the system performs the same function, specifically water circulation and entrainment of chemical solution still function in the same manner. The end result, namely to provide concentrated and unconcentrated solutions, is also the same for the systems of both parties. However, in the present case by removing light-receiving devices from the system of Hirabayashi such that there is only a single light-receiving device not only does the system of Hirabayashi become inoperable it still performs different functions and uses different parameters than the claimed invention. Hirabayashi, simply put, performs different functions using different parameters to provide potentially the same or similar result as the claimed invention. Thus, although the omission of an element and its function in a combination is an obvious expedient if the remaining elements perform the same functions as before, since the elements of Hirabayashi do not perform the same functions as the claimed invention the opinion of *Karlson* does not apply.

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Moreover, referring to MPEP 2144.03, official notice unsupported by documentary evidence should only be taken by the Examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known, *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). The notice of facts beyond the record, which may be taken by the examiner, must be "capable of such instant and unquestionable demonstration as to defy dispute". The facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable persons and are not amendable to the taking of such notice, *In re Eynde*, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973). General conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection, *Zurko* 258 F.3d at 1386, 59 USPQ2d at 1697. The Examiner must provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge, *Soli* 317 F.2d at 946, 37 USPQ at 801.

Applicant submits the elements of the claimed invention are not common knowledge and would not have been obvious to one skilled in the art. Hirabayashi is a prime example showing that the claimed elements are not common knowledge and the omissions of components of Hirabayashi would not involve routine skill. The omission of a light-receiving device in Hirabayashi does not allow one to arrive at the present invention since such omission renders the system of Hirabayashi inoperable and since similar tasks are not performed. Applicant further submits that the Examiner has not provided any sound technical and scientific reasoning to support her conclusion that the claimed elements are obvious.

Referring to MPEP 706.02(j) and 2143, to establish a *prima facie* case of obviousness the prior art reference(s) must teach or suggest all the claim limitations. Thus, Applicant submits that since Hirabayashi clearly fails to teach

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or suggest the use of a single vision sensor, the use of only one vision sensor to generate a safety system signal in response to the position of that vision sensor, and the use of only one vision sensor to generate a safety system signal in response to the known vehicle coordinates of that vision sensor that claims 1 and 9 are novel, nonobvious, and are in a condition for allowance. Also, since claims 2-3, 5-8, 10, and 13-17 depend from claims 1 and 9, respectfully, they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Claims 4 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi in view of Breed et al (6,405,132).

Applicant submits that since claims 4 and 8 depend from claim 1, they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons as put forth above.

Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi.

The Final Office Action states that Hirabayashi does not teach determining the at least one object to be at the same elevation as the vehicle and generating the object detection signal in response to the initial determination. Applicant agrees. However, the Final Office Action states that Hirabayashi performs the same assumption recited in claim 11 of the present application and in so doing refers to col. 2, lines 65-67, and col. 3, lines 1-20. The Applicant traverses.

Applicant submits that nowhere in Hirabayashi is such an assumption stated or suggested. In col. 2, lines 65-67, and col. 3, lines 1-20, Hirabayashi discloses the simultaneous generation of images of three targets within two regions and the determination of the distance of each target. Nowhere in determining the distances of the targets does Hirabayashi state or suggest that an assumption is made in which the targets are at the same elevation as the vehicle. In fact, Hirabayashi discloses accounting for different elevations of targets, see Figures 9 and 14 and accompanying description.

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Thus, since claim 11 depends from claim 9 and since Hirabayashi fails to disclose the assumption of claim 11, claim 11 is also novel, nonobvious, and is in a condition for allowance.

Claims 12 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi in view of Kurahashi et al. (USPN 5,529,139).

Applicant submits that neither Hirabayashi nor Kurahashi teach or suggest alone or in combination the reduction of the speed of a vehicle in response to the detected increase in height and width of an object. The Final Office Action states that Kurahashi teaches speed adjustment in response to the change in distance between vehicles and states that this is the same as when the size of a detected object increases. Although in general when the distance of an object decreases the size of the object increases, the detection of distance change is not the same as the detection of height and/or size change. It cannot be implied that by detecting distance change that height and size change are also detected. As with Hirabayashi above, although the end result of adjusting vehicle speed may be the same, the functions or tasks performed prior to that end result are different. Thus, the recited elements and the claimed invention are also different than that disclosed by Kurahashi.

Since claim 12 depends from claim 9 and since Kurahashi fails to teach or suggest adjusting vehicle speed in response to change in object height and size, claim 12 is also novel, nonobvious, and is in a condition for allowance.

Claim 20 is similar to claims 1 and 9 and recites an adaptive cruise control system, which includes all of the limitations recited in claim 1 and further includes the limitations of a controller determining the size and up-angle of a detected object, determining the range of the object, and reducing the speed of the vehicle in response to the range.

The Office action relies on Hirabayashi for the teaching of all of the limitations of claim 20 except for the limitation of reducing the speed of the vehicle in response to range for which it relies on Kurahashi. As stated in the previous Response, Kurahashi fails to teach or suggest performing a safety

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system task in response to a determined or known vision sensor position. Kurahashi simply detects an inter-vehicle distance. Kurahashi is not concerned with the position of the distance detector utilized therein, since inter-vehicle distance can be determined without such knowledge. Therefore since, both Hirabayashi and Kurahashi fail to teach or suggest each and every element of claim 20, claim 20 is also novel, nonobvious, and is in a condition for allowance.

Applicant also submits that since the claimed elements of the present application are not common knowledge and do not require simply routine skill in the art and since the opinions cited in *Karlson* was improperly applied, that the present application was improperly made Final. Referring to MPEP 706.07, present practice does not sanction hasty and ill-considered final rejections. The applicant who is seeking to define his or her invention in claims that will give him or her the patent protection to which he or she is justly entitled should receive the cooperation of the Examiner to that end, and not to be prematurely cut off in the prosecution of his or her application. Applicant submits that with the amendment of the independent claims as provided in the previous Response the Applicant has sought to define his invention as justly entitled and that the Applicant has not dallied or resorted to technical or other obvious subterfuges in order to keep the application pending. Thus, Applicant submits that although he believes the present application to be in a condition for allowance, if the Examiner feels otherwise the present application should be currently under a non-final rejection.

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In light of the remarks, Applicant submits that all of the rejections are overcome. The Applicant has added no new matter to the application. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, she is respectfully requested to call the undersigned attorney.

Respectfully submitted,

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